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Citizens' Bulletin

Volume 10 Number 8 April 1983 $5/yr.
The Connecticut Department of Environmental Protection

Citizens' Bulletin
April 1983
Volume 10 Number 8 $5/yr.
Cover Photo: Members of Bridgeport Boys and Girls Club at Chatfield Hollow State Park; Kirsten Engel

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DEP Citizens' Bulletin
(USPS 041-570)

Published eleven times a year by the Department of Environmental Protection. Yearly subscription $5.00; two years, $9.00. 2nd class postage paid at Hartford, Connecticut. Funds are also provided through a federal grant from the Office of Coastal Zone Management under the Coastal Zone Management Act of 1972. Please forward any address change immediately.

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Conservation Officer Frederick T. Pogmore received the Wildlife Officer of the Year award from Dennis DeCarli, Deputy Commissioner for Conservation and Preservation, as Eastern District Captain Donald DeBella looked on.

Pogmore selected as 1982 Wildlife Officer

Conservation Officer Frederick T. Pogmore, of Lebanon, has been named Wildlife Officer of the Year for 1982 by the Department of Environmental Protection's Law Enforcement Unit. Dennis DeCarli, Deputy Commissioner of DEP's Division of Conservation and Preservation, presented Pogmore with the Shikar Safari Club International's Award for Wildlife Officer of the Year January 28, 1983.

The Wildlife Officer of the Year is chosen on the basis of his willingness to gain a well-rounded knowledge of the wildlife management field, his special efforts toward conservation of the State's Wildlife resources, and his efforts above and beyond his normal work assignments.

Conservation Officer Pogmore was nominated by his South Zone, Eastern District supervisors not only for working long and difficult hours on his law enforcement duties and for his determination to stop poaching in the State but also for "his willingness to work the other side of the coin, establishing a rapport with land owners and farmers. This has resulted in thousands of acres of land being leased for hunting and fishing for the sportsmen of Connecticut."

The Shikar Safari Club award consists of a certificate and a plaque with the club's emblem and a donation in the recipient's name to the National Foundation for Conservation and Environmental Officers.

Pogmore was appointed a Conservation Officer on January 28, 1977, and was then assigned to work in Conservation Region IV in a patrol area consisting of the towns of Lebanon, Franklin, Sprague, and Lisbon. He is currently assigned to the Southeastern Zone of DEP's Eastern District. ■

"The Connecticut Department of Environmental Protection is an equal opportunity agency that provides services, facilities and employment opportunities without regard to race, color, religion, age, sex, physical handicap, national origin, ancestry, marital status or political beliefs."

By Kirsten Engel,
Environmental Intern

Challenges get city kids to interact with nature

On a clear summer day 30 pairs of feet, inappropriately clad in beach flip-flops and street shoes, line up behind Chatfield Hollow Park Interpreter Cheree Burke. "Alright, it's follow the leader to the trailhead!" Cheree shouts over the excited voices. Giggles, pushes, calls of "No butts allowed!" and the rambunctious group of nine to 12 year olds from the Bridgeport Boys and Girls Club set off on their specially-designed nature walk.

Cheree leads the group around trees and signposts, over logs and under rails to form a ragged semi-circle at the head of the green trail. "Now," Cheree asks, "who can tell me the three things needed for survival?" Thirty voices yell, "Electricity!"; "T.V.!"; "McDonalds!"; "Blankets!"; "A sink!"; "Well, al-l-l-lmost," says Cheree, "but where do we find electricity? What do we buy from McDonalds? What do we get from a sink?" The questions provoke the proper answers: food, shelter, water.

Cheree, or rather the two pig-tailed trail leaders she has chosen, bring the group to a black birch tree where they taste the bark ("Birchburgers? Yech!"). They go over a stream where they listen to running water ("Even if there weren't any sinks, I wouldn't drink no muddy water!"). They go through an Indian cave. After pulling each child through the narrow cave opening (half of them had protested that they couldn't possibly make it), Cheree tells the group what they've accomplished. "You can now go home and tell all your friends that you climbed through a real Indian Council Chamber! Not many people can say that." Cheree starts to clap and soon the woods echo with the group's spontaneous self-applause.

The fast-paced walk, the survival game, the applause --each has a purpose in "nature in stress," a unique approach to nature interpretation for inner city kids. The object of the approach is to challenge kids to interact with the natural environment. Once the challenge is accepted, the idea is to then build the kids' confidence so that they will take an active interest in nature.

The stress theory was designed for children who have had little or no exposure to natural open spaces and are thus unprepared--intellectually and emotionally--to enjoy or understand nature. "The kids on these walks are bright, every one of them," says Cheree, "but what is unfamiliar to anyone is threatening. Put me on the streets of Bridgeport, and I wouldn't know what to do."

Hammonasset Beach Park Interpreter Alberto Mimo came up with the approach five years ago after several disastrous experiences giving inner city kids the same walk he gives other Hammonasset visitors. "The kids wouldn't stand still for five minutes," says Mimo. I realized there was something wrong with my nature walk." What Mimo realized is possibly the first principle of the nature in stress theory: that there is no use trying to teach kids unless they want to learn. It is up to the Park Interpreter to arouse their interest.

Mimo and Burke, who has expanded the approach, use the kids' seemingly limitless supply of energy to help them out. Over an hour riding on a bus with maybe 45 other children and a child is understandably ready for activity. Until this energy is expended, Mimo claims, there's no chance that he or she will listen to what you have to say. "So I put on my bathing suit," says Mimo, "and take the kids into the marsh. They don't believe it when I tell them they'll be more tired than I will by the end of the walk."

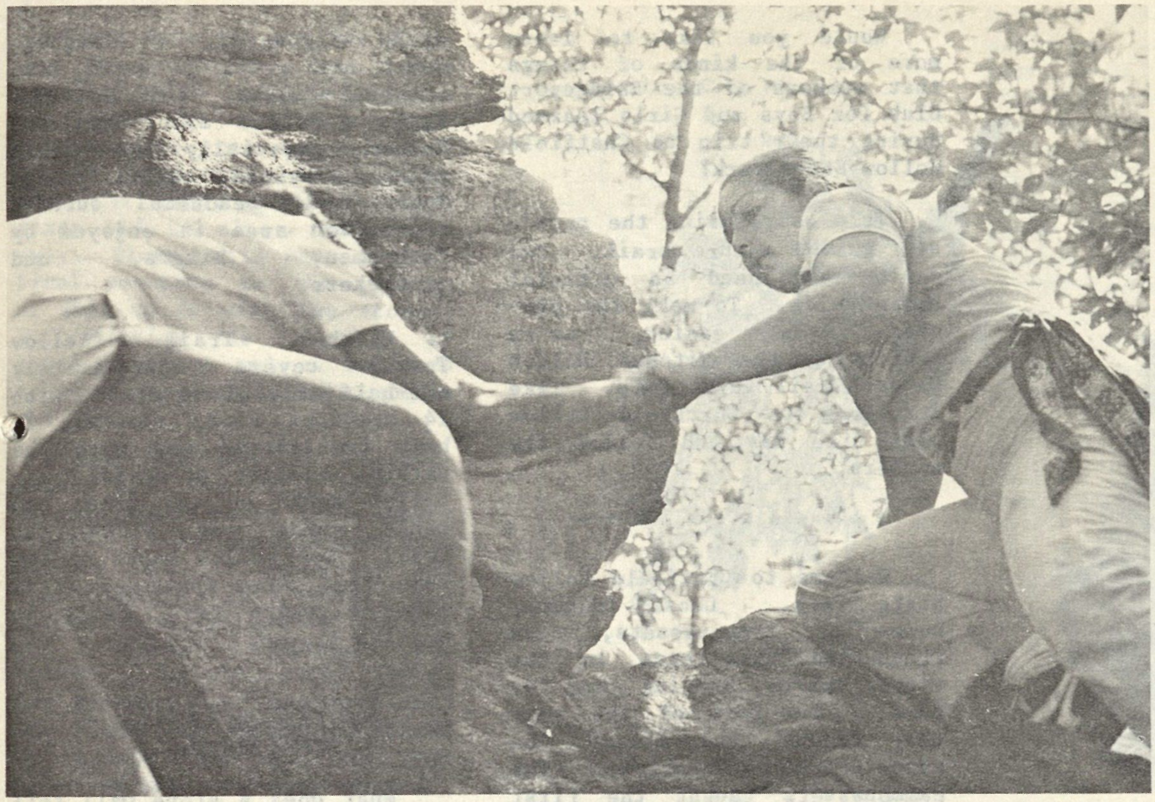
A run in a marsh both uses up excess energy and forces the kids to become aware of where they are. "They find out that wild rose bushes are prickly and that a marsh can be muddy in some places and dry in others. Pretty soon they're coming to me with questions," says Mimo.

Kirsten Engel photos

Members of Bridgeport Boys and Girls Club hit the trail with park interpreter Cheree Burke.

Cheree's first object is to break down the teacher-student barrier and let the kids know, she says, "I'm Cheree, not 'her.'" Once in the woods this is important. Because everything surrounding them is so new, the kids are often disoriented and unsure of how to handle themselves. Suddenly they are totally dependent upon the trail guide to show them how to become independent in the woods. This is the interpreter's role, but it won't work unless the children already feel comfortable with the interpreter. Cheree has no trouble establishing rapport with the kids. She touches them--pats their heads as she walks by, rests a hand on a small shoulder--and makes them laugh. Once several hundred yards of trail has been traveled and the kids have calmed down a bit, Cheree is able to give a mini-ecology lesson. An ecology lesson disguised as a tree-and-people physical, that is.

"Here," Cheree takes the hand of a shy but eager girl at the end of the line. "Put your ear against this oak tree and tell me what you hear." The kids nudge and poke one another. "Nothin'," is the reply. "Could I have another volunteer?" asks Cheree. A second is chosen to lend an ear



Cheree Burke, interpreter at Chatfield Hollow State Park, helps a youngster climb through a shallow cave.

to a log lying on the ground. Still no one hears a sound. A third and a fourth are taken out of line, one to listen for the other's heartbeat. By this time the kids are practically on top of one another trying to see what's going on. "Hear anything now?" This time Cheree gets a positve answer. "So is she alive?" Cheree asks the entire group. Their resounding cry of "Yes!" makes the vote unanimous.

But now Cheree scratches her head. The kids fall silent. "What about the trees?" Cheree questions. Pointing to a log, she asks if it is alive. A loud "no!" is her answer. "And this tree?" she asks, pointing to the large leafy oak. This time the response is decidedly mixed. Thirty pairs of eyes focus on Cheree. This is her cue. Now Cheree has their interest, and she can tell them how the anatomy of a tree is different from that of a human, how the birds in the oak tree live off

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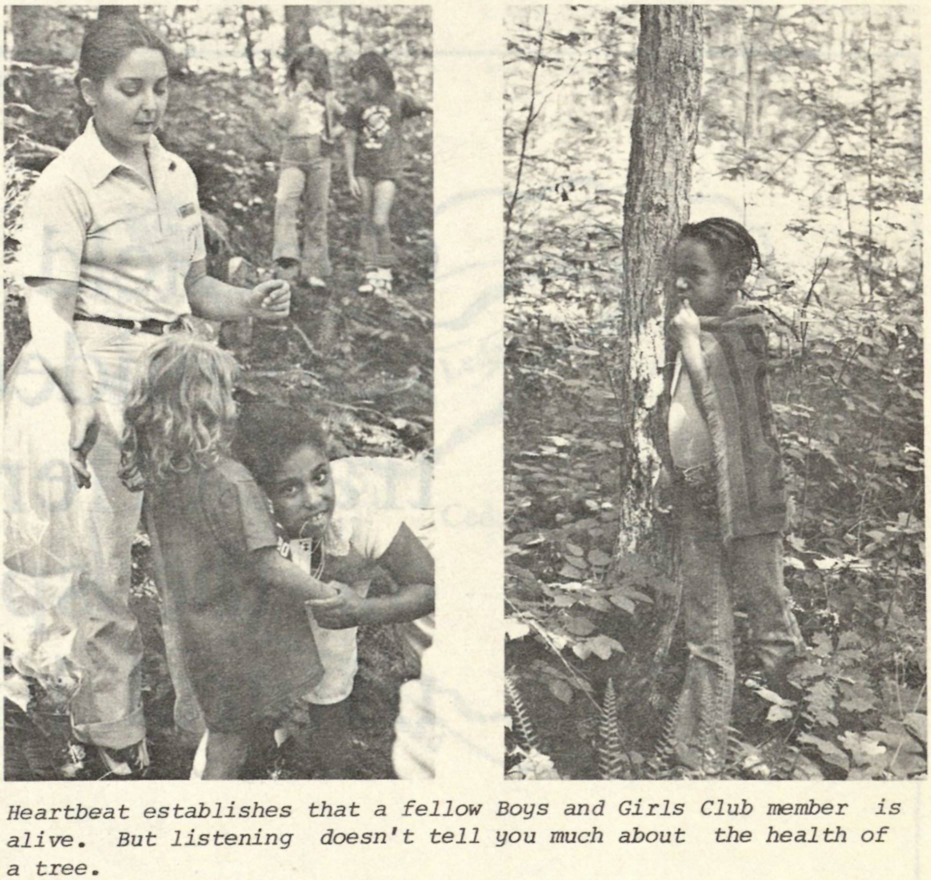


Heartbeat establishes that a fellow Boys and Girls Club member is alive. But listening doesn't tell you much about the health of a tree.

Chatfield Hollow's self-guided trail offers on-the-spot natural history

By Suzanne Tinti, Student Intern,
University of Connecticut

Would you like to learn more of the kinds of things that members of the Bridgeport Club for Boys and Girls learned during their trip to Chatfield Hollow State Park?

It's easy, using the park's self-guided nature trail. You don't even need an official human guide. To make the process even easier, we're reprinting the Witches Hollow Nature Trail guide here. Take it along to Chatfield Hollow some nice day and follow the numbers.

* * * * * * * * * * * * *

Welcome to Chatfield Hollow State Park. Local Indians, known as Hammonassets, once frequented this area in the winter months, hunting game for furs. The rest of the year they hunted and fished the shoreline of Connecticut. The Hammonassets taught the first settlers of the region how to make hominy, johnnycakes, and maple syrup. These Indians spoke Algonquin, a language which has given us words like raccoon, moose, and opossum. Early settlers also used the hollow, especially its stream which provided water power. Today this beautiful outdoor recreation area is enjoyed by fishermen, hikers, and picnickers.

Witches Trail (Yellow Trail) covers approximately one-half mile of woodland, with 14 stations along the way to help familiarize you with the natural history of this area. Yellow marks on the trees and rocks guide you along the trail. Two yellow marks on the same tree mean that the trail makes a sharp turn. Start at Station 1.

1. SOME ANIMALS LIVE IN STONE HOUSES

What does a stone wall tell us? It is a clue, and sometimes the only remaining evidence, to show that this land was once cleared for farming or grazing. The stones used to build these walls were left here by a glacier that covered this area approximately 18,000 years ago. In order to farm the land, early settlers first had to clear the stones away. Stone walls were a practical solution to the problem of what to do with the stones, in addition to serving as boundary lines and as barriers to keep grazing animals within the field.

What you see is approximately half the wall, since it extends about three feet underground. This underground part of the wall is necessary for stabilization in winter and spring when the ground freezes and thaws, shifting the stones. In the early 1900s, the farmland was abandoned, and the field was slowly reclaimed by forest. The wall now provides shelter for many animals, such as chipmunks and snakes.

2. CEDAR CHESTS GROW IN THE FORESTS

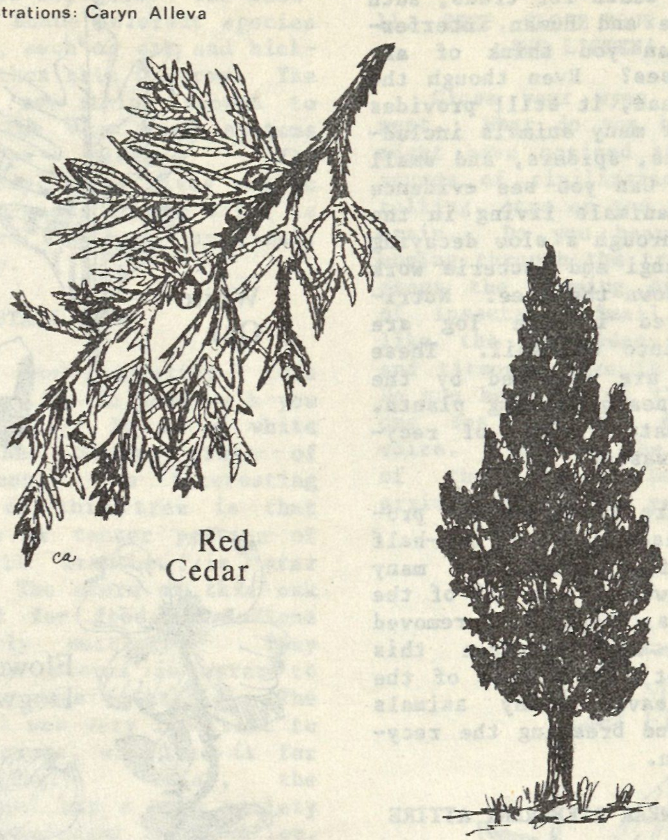
Red cedar trees are recognized by their scale-like needles and shredded bark. The greenish berries that are available year round are eaten by birds such as bobwhite quail and pheasants. The seeds are spread widely by birds, passing through their digestive tracts undamaged. Perhaps the trees you see here sprouted from seeds left by a bird moving through the area.

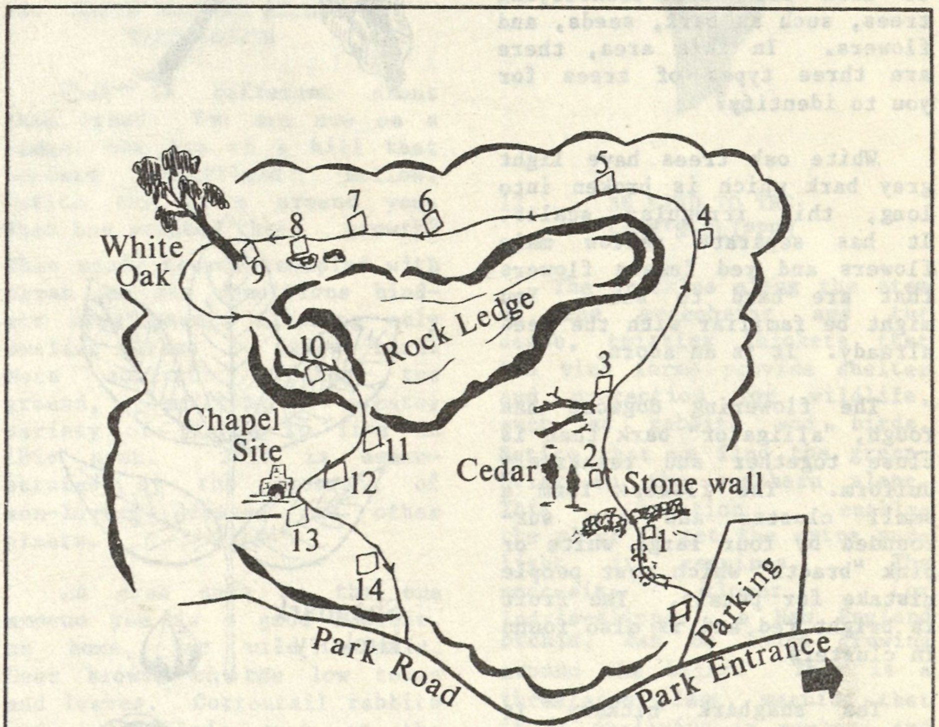
Cedars are pioneer trees and are among the first to grow in cleared pastures. Since cattle will not graze on cedar seedlings, cedars have a head start on other vegetation when reclaiming a field. They cannot tolerate shade and are seldom found in a mature forest. The heartwood is aromatic and rose-brown in color and is lightweight, but strong and very durable. It is used for cabinets, fuel and fenceposts. It is a highly rot-resistant form of wood.

3. THE RECYCLING CHAIN

You'll notice fallen trees on the forest floor. Why did

Illustrations: Caryn Alleva





they die? There are many causes of death for trees, such as disease and human interference. Can you think of any other causes? Even though the tree is dead, it still provides a home for many animals including insects, spiders, and small mammals. Can you see evidence of these animals living in the trees? Through a slow decaying process fungi and bacteria work to break down the tree. Nutrients stored in the log are released into the soil. These nutrients are absorbed by the roots of nearby living plants. This is nature's way of recycling its wastes.

One acre of forest can provide a steady yield of one-half a cord of firewood for many years. However, not all of the dead trees should be removed from the forest since this would upset the balance of the forest, leaving many animals homeless and breaking the recycling chain.

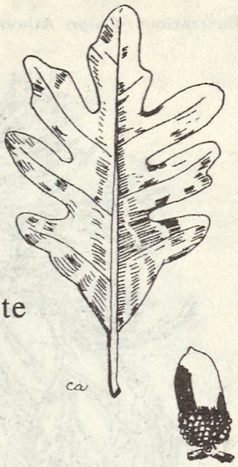
4. TREES WEAR DIFFERENT ATTIRE

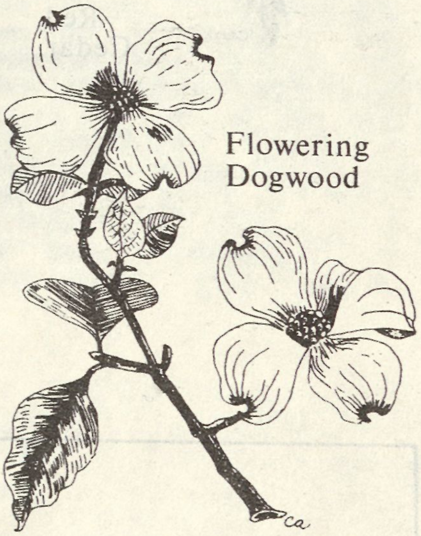
The shape of a leaf is one way you can identify a tree. However, there are other clues to look for when identifying trees, such as bark, seeds, and flowers. In this area, there are three types of trees for you to identify.

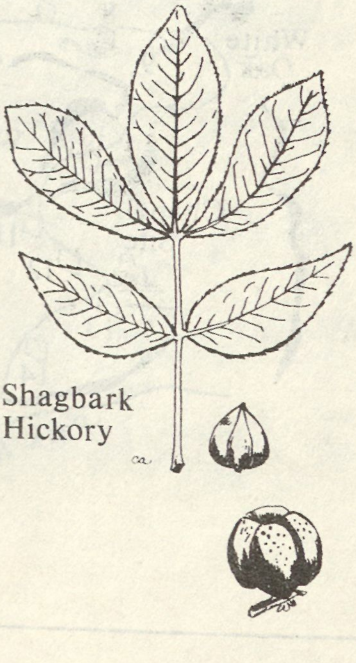
White oak trees have light grey bark which is broken into long, thin irregular scales. It has separate yellow male flowers and red female flowers that are hard to see. You might be familiar with the seed already. It is an acorn.

The flowering dogwood has rough, "alligator" bark that is close together and relatively uniform. The flowers form a small cluster and are surrounded by four large white or pink "bracts" which most people mistake for petals. The fruit is bright red and is also found in clusters.

The shagbark hickory is named for its grey bark, which peels lengthwise off the trunk in long, loose irregular strips. The male and female flowers are small, so they often go unnoticed. The hard-shelled nut is enclosed in a thick husk.


White Oak


Flowering Dogwood


Shagbark Hickory

Touch the bark of each of these trees with your eyes closed. Can you tell the difference?

5. SEVERAL ROCKS BECOME ONE

Here is an outcropping composed of rock which is metamorphic in origin. That i the rock has been altered from its original form by tremendous pressure and high temperatures. As a result, it is greatly changed in appearance and structure. On closer examination a geology buff can identify types of metamorphic rocks such as schist, quartzite, slate, and marble and some minerals such as quartz and garnet.

6. SWEET-MEATED NUTS MAKE GOOD FOOD FOR ANIMALS

Beech trees are one of the common hardwood trees you will find in mature wooded areas of southern New England. The great height and extensive root systems of these trees make them an important influence in the forest. Feel the smooth texture of the light grey bark. It cannot be mistaken for any other tree, even if you are blindfolded.

The fruit is a spiny bur that encloses two tan, edible, sweet-meated nuts. A large variety of animals including squirrels, raccoons, wild turkeys, and opossums use beechnuts for food. Native Americans also included it in their diets. The hard, strong wood is highly rated as a fuel. It can also be used for furniture and tools, but it does not weather well. Because of its smooth bark, the beech is a favorite tree of vandals who carve their initials in it. This is a serious offense to the tree, for disease or insects can enter the wound and further damage or kill the tree.

7. WHAT CAUSED THIS GREAT DEPRESSION?

Examine the landscape before you. What force might have helped to shape it? About 18,000 years ago the last glacier of the ice age was at its peak. This giant sheet of ice, 1.6 kilometer (one mile) thick in some areas, brought about a tremendous change in the landscape. Acting like a giant bulldozer, it advanced southward and scoured out soil and rock in its path as much as 20 meters (65 feet) deep. Much of this debris was carried along with the glacier.

About 13,000 years ago the glacier started melting and receding. The melting caused the glacier to drop much of the rock and soil debris it had been carrying. This debris, or glacial till, was left scattered across the land. Some of these rocks might have been carried here from as far away as Canada. The melting water from the glacier formed streams, rivers, lakes, and wetlands. Look at the depression before you. At one time, this might have been a glacial stream.

8. A FOREST GROWS FROM A ROCK

Is it possible for a forest to grow from a rock? If left alone, bare rock may evolve into a forest, but this is a process we will not see from start to finish in our lifetime, for it takes hundreds of years. Lichen, a plant composed of fungus and algae, begins growing directly on bare rock. A weak acid produced by the lichen helps to break up the minerals in the rock. Sparse soil begins to form, and wind-blown dust and water get trapped on the rock. Moss begins growing on this thin layer of soil. Years of dying and decaying moss help enrich soil forms to support grasses and flowering plants.

When woody shrubs and sun-loving pioneer trees start appearing, they shade out some of the smaller sun-loving plants. In time, they create enough shade so their own seedlings will not grow. The seedlings of shade tolerant species of trees, such as oak and hickory are then able to grow. The soil is now thick enough to support the deep root systems of these trees. The oak-hickory forest gives way to the beech-maple forest which is considered a climax, or final, community.

9. OUR STATE TREE

Can you identify this tree? Earlier in your walk you examined it. It is a white oak, the State tree of Connecticut. An interesting feature of this tree is that the pith or center portion of the small branches is star shaped. The acorn of this oak was used for food by Indians and early settlers. They boiled the acorns in water to make them more palatable. The white oak was very important to the colonists, who used it for shipbuilding. Today, the strong wood has a wide variety of uses including construction, floors, furniture, cabinet work, tool handles, railway ties, and fuel.

10. HARSH WEATHER STUNTS TREE GROWTH

What is different about this area? You are now on a ridge, the top of a hill that borders Chatfield Hollow. Notice the trees around you. What has stunted their growth? This sandy topsoil coupled with harsh weather conditions hinders development, allowing only smaller trees to grow here. More sunlight reaches the ground, permitting a greater variety of plants to live in this area. This is demonstrated by the presence of sun-loving grasses and other plants.

An area such as the one around you is a good habitat, or home, for wild animals. Deer browse on the low twigs and leaves. Cottontail rabbits and game birds such as the ruffed grouse feed upon the huckleberries and blueberries found here. The busy plants provide shelter for many animals.

11. STOP, CLOSE YOUR EYES AND LISTEN!

Close your eyes for a moment. What do you hear? You might have noticed the distant sounds of civilization, people talking, cars on the road. Try again. Do you hear the wind moving through the trees? What about the humming or chirping of insects? Small songbirds like the chickadee, nuthatch, and titmouse live in the area. Do you hear any of them? Each one has its own distinctive voice. Imagine the stillness of the forest before the arrival of European settlers.

Moccasin Flower

12. BE KIND TO THE LADY'S-SLIPPER

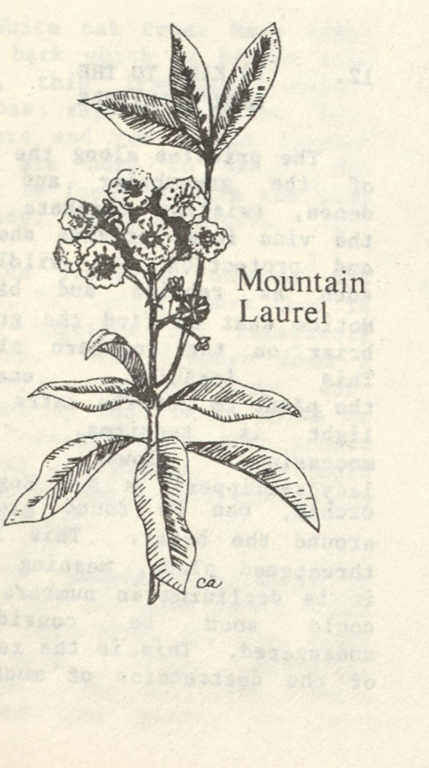
The prickles along the stem of the greenbriar and the dense, twisting thickets that the vine forms provide shelter and protection for wildlife, such as rabbits and birds. Notice that we find the greenbriar on the southern slope. This location enables the plant to get the extra sunlight it requires. The moccasin flower (or lady's-slipper), a New England orchid, can be found growing around the briar. This is a threatened plant, meaning that it is declining in numbers and could soon be considered endangered. This is the result of the destruction of much of its natural habitat and of people collecting it. Rare native plants such as this one should be enjoyed in their natural surroundings. Please do not pick them or dig them up.

13. WATCH OUT FOR GOODY & BETTY WEE

The inhabitants of Chatfield Hollow, the area once known as Witches Hollow, tell fanciful legends of two mischievous witches, "Goody Wee" and her daughter "Betty Wee." They were alleged pranksters, having been accused of entering the cream from their neighbor's cows and preventing it from being made into butter.

The remains before you are of a chapel built by the Civilian Conservation Corps. The Corps also built the dam which created Schreeder Pond below you. Members complained of pranks played on them while working on these projects. These pranks were attributed to the spirits of the two witches, Goody and Betty Wee.

At Chatfield Hollow, it's "take only pictures, leave only footprints"! There are two witches to enforce the code!



Mountain Laurel

14. OUR STATE FLOWER

This evergreen bush, known as mountain laurel, produces the beautiful pink blossoms that are our State flower. Feel the waxy coating of the laurel leaf. This coating helps protect the leaves during the winter. Mountain laurel is a tough plant that frequently grows where other plants could not survive.

To the right of the mountain laurel is a black-barked tree with egg-shaped leaves. It is known as black birch or sweet birch. Oil of wintergreen is obtained from the sap, leaves, and wood and used to make medicines and soft drinks. Fermented sap may be used as an ingredient of birch beer. The hard heavy wood is used for furniture and is good firewood. The black birch buds, seeds, and twigs are eaten by grouse, deer, and rabbits.

We hope you have enjoyed Witches Trail. If you have any questions about the trail or the park, please ask any of the park personnel.

Interpreters

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The interpreter must be a well qualified person with a great deal of knowledge about the subjects to be interpreted and a large amount of curiosity and enthusiasm. In addition, he or she must truly like people and be able to communicate with them effectively. Much of the day to day interpretation done in Connecticut's parks and forests is carried out by seasonal employees who work during the summer months. After attending a three-day Interpretive Training Institute in early June, the seasonal interpreter is assigned to a particular park.

Due to budget constraints not all parks have interpreters. Few parks, in fact, have full time interpretive programs. It is therefore wise to check with particular parks regarding what, if any, interpretive programs they may offer to the public.

Currently, interpretive programs are offered on a seasonal basis at the following parks:

* Chatfield Hollow
* Rocky Neck
* Gay City
* Hammonasset Beach
* Mashamoquet Brook/Wolf Den
* Dinosaur
* Kettletown
* Putnam Memorial
* Sleeping Giant
* Osbornedale

Some of these parks have full time seasonal interpreters while others have interpreters part time. Again, a good policy to follow is to contact the park to find out when and where interpretive programs are conducted.

Some of Connecticut's State Parks also offer self-guided nature trails for the casual hiker. These trails have informative booklets keyed to locations along the trails that give the visitor a good overview of natural and historic features along that trail. These guides are free of charge and can be obtained either at the beginning of the trail or at the park headquarters. Self-guided trails are located in these parks:

* Chatfield Hollow
* Hammonasset Beach
* Rocky Neck
* Mansfield Hollow
* Wolf Den
* Kettletown
* Dinosaur

A new program of the DEP Information & Education Section entitled the Family Outdoor Discovery Program is augmenting the interpretive programs presently offered on a seasonal basis. Family Outdoor Discovery Programs are offered the year around at various locations around the State. They are conducted by staff from the Information and Education Section and by guest speakers. Further information on these programs and the interpretive programs can be obtained from the Information and Education Section, Rm. 108, State Office Bldg., Hartford, CT 06106.

Interpreters

Parlez vous "park"?

By Steven O. Fish, Assistant Director/Education, DEP Information and Education Unit

Kirsten Engel

Interpretation in action: Alberto Mimo, director of the Meigs Point Nature Center at Hammonasset Beach State Park, examines coastal life forms with participants in one of the center's regularly scheduled nature walks.

What is a park interpreter? Most people probably assume an interpreter is a person who translates foreign languages. In the park framework the term interpreter, or environmental interpreter, describes the professional naturalist, historian, or environmental education specialist. The interpreter interacts with the public to bring about a greater awareness, appreciation, and understanding of the state park, forest, or natural preserve. The interpreter is a specialist in the art of creating an awareness in people of the world around them.

Interpreters are part of a team of people working in our State Parks and Forests not only to provide for the enjoyment and appreciation of the areas by visitors but also to help protect the people and the parks.

Included on this team are a wide variety of persons such as those involved in maintenance and law enforcement and the administrative staff. Any one of these persons may have contact with park visitors, but it is the primary purpose of the interpreter to be the bridge between a park and the visitors that come to that park.

Interpreters are responsible for arranging a wide variety of programs that provide new and meaningful experiences for visitors to our parks and forests. The formats can be as diverse as the subjects they address. Guided walks, lectures, and slide shows are standard interpretive approaches. However, all park interpretation isn't done by interpreters communicating directly with visitors. Roadside exhibits, self-guided trail systems, visitor center displays, books, pamphlets, and movies are inanimate members of the interpretive team.

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By Leslie Bieber, Citizen Participation Coordinator

Commercial fishermen, ports, ocean-oriented industries helped by Marine Advisory Service

If you are a commercial fisherman who would like some information on new gear or preparation of your taxes, or if you are a municipal planner interested in developing your local port, or if you are a member of a town shellfish commission and want to improve the quality of your shellfish beds, the Marine Advisory Service can provide the help you need. Lance Stewart, Marine Biologist/ Program Leader, and Norman Bender, Marine Economist, serve as advisory specialists for the service, aided by secretary Connie Fontaine and several special subject interns.

Established under the Office of the Sea Grant of the U.S. Department of Commerce, the Marine Advisory Service is the ocean-oriented equivalent of the Cooperative Extension Service. In fact, the working philosophy of the M.A.S. closely parallels the agricultural development aim characteristic of the Land Grant system which includes the University of Connecticut's College of Agriculture and Natural Resources. And the office, marine equipment, and certain vessels used by the Service are located at UConn's Avery Point campus in Groton and represent cooperative assistance provided by the University's Marine Sciences Institute.

Dr. Stewart explains that the Advisory Service has several main areas of involvement. While commercial fishermen are currently its major users, sport, fin- and shell-fishermen benefit from the programs as well. The Service works to identify research needs, for instance, and to respond with technical information or encourage appropriate funding by Sea Grant. "The research we are interested in has practical applications," said Stewart, "and we try to make sure that the information reaches the people who can utilize it."

Aiding in the developing of Connecticut's ports is an important function of the service. Stewart and Bender were instrumental in helping the Town of Stonington obtain over $200,000 in funding to improve the most active commercial fishing port in the State. Work included dock improvements, bulkheading, and a new ice house.

Stewart noted that in larger cities, especially, ports and docks are being purchased for use as private marinas or as sites for condominiums, and as a consequence commercial fishing operations are often displaced. "We try to instill in the towns an idea of the needs of the commercial (fishing) sector and the possibility of multiple use waterfront design." New London, New Haven, Norwalk, and Bridgeport have also been planning redevelopment activities in their ports and have interacted with the M.A.S.

One of the most interesting of the Advisory Service's activities is the continuous study of fishing gear with the objective of increasing fishing efficiency. Workshops have been conducted dealing with the design, assembly, and repair of several types of nets. One session dealt with trawl nets, explaining mathematical formulae for their construction, new technological advancements to reduce drag and increase fuel efficiency, and actual "hands on" cutting, sewing, and repair.

The same techniques were used in gill net short courses. "Chalkboard" explanations of net building were translated into actual work on the net material. Stewart says that science is being applied more and more to net-making. When evaluating new gear, he will don scuba equipment to observe its workings firsthand . Many improvements, validation of net design, and "fine tuning" adjustments have resulted from this process. While under water, Stewart can also monitor the ecological effects of the various types of nets and drags.

The Marine Advisory Service functions as a liaison for many organizations and agencies involved with the fishing industry. Working closely with the marine-related trade associations, Stewart and Bender have participated in regional conferences, made recommendations regarding fisheries management, and assisted in the establishment of the Connecticut Fishermen's Association. They assist with mariculture and shellfish enhancement technology transfer in cooperation with the National Marine Fisheries laboratory in Milford, the State Department of Agriculture/ Aquaculture Division, and the shellfish industry in Long Island Sound. Over the last four years, municipal shellfish commissions have adopted innovative shellfish management and improvement techniques. The N.M.F.S. lab in Milford provides the seed stock, and the Marine Advisory Service advises on time and location at coastal sites where the stock will be placed. The resulting shellfish bed enhancement is monitored through harvests and diving observations.

Because the quality of the Long Island Sound environment has direct effects on the fishing industry, Stewart spends a good deal of time helping to develop and implement programs to minimize potential pollution. The disposal of dredge spoils in the Sound or farther out to sea causes fisheries and other environmental concerns. The Disposal Area Monitoring System (DAMOS) is used to detect the effect of the dredge disposal on fin and shell fishing. Stewart has worked with the U.S. Navy's Underwater Sound Lab and the Army Corps of Engineers to chart

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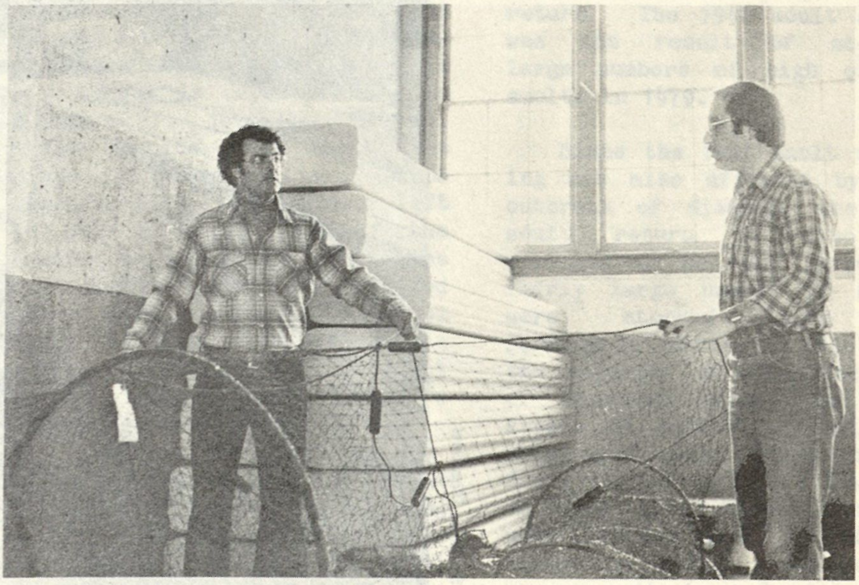
Marine biologist Lance Stewart, left, is program leader for the Marine Advisory Service. While he specializes in the biological, marine economist Norman Bender works on financial problems of fishermen.



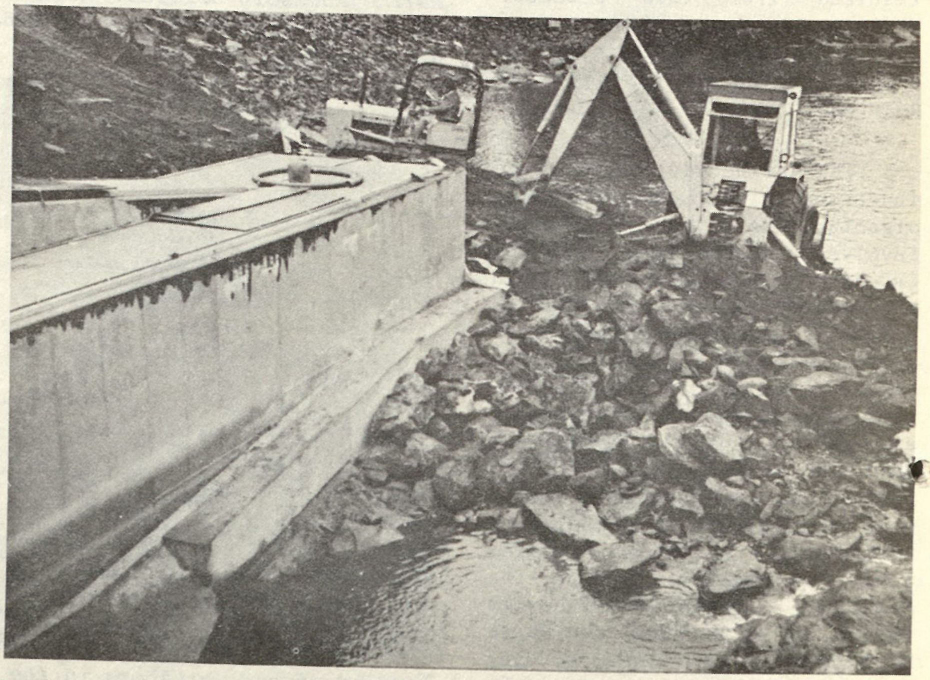
Leslie Bieber photos

Studies of and workshops in the design, assembly, and repair of nets are among services Marine Advisory Service offers commercial fishermen.

Atlantic salmon

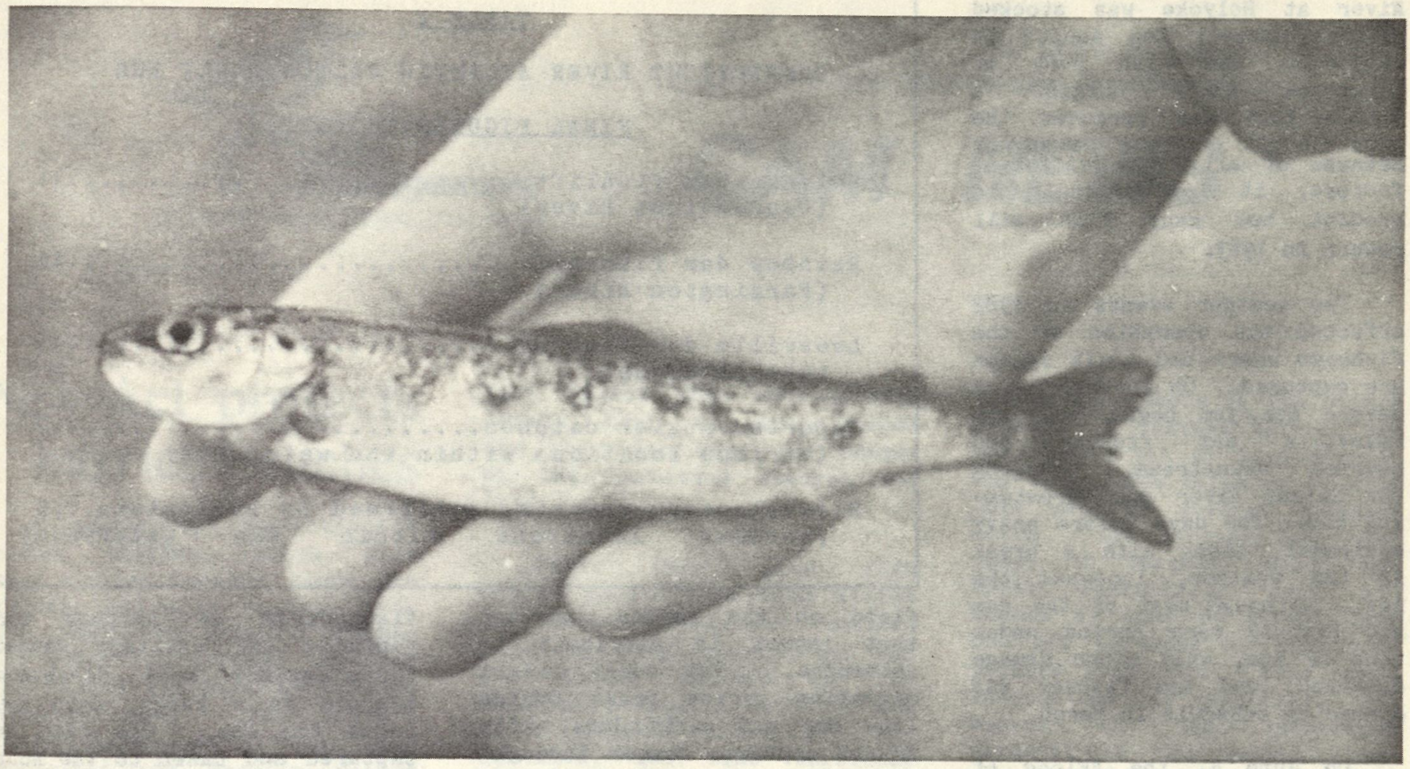
1982 successful despite fewer returning adults

By Stephen Gephard,
DEP Fisheries Biologist



Stephen Gephard

During December damage the "Flood of '82" caused to the Leesville fishway was repaired.



Steven Fish

Deeply forked tail and small mouth distinguish Atlantic salmon smolt from a trout. This smolt was stocked into the Farmington River after two years of hatchery rearing.

The Connecticut River Atlantic Salmon Restoration Program entered its 16th season in 1982. Although it was not the best year in terms of adult salmon returns, it was a good year in other respects. A total of 70 adult salmon were known to have returned to the Connecticut River watershed in 1982. Table 1 summarizes the 1982 salmon run.

The first salmon was taken on May 21 at the Rainbow fishway and the last salmon was taken on July 12, also at the Rainbow fishway. Of the 52 adult fish captured in Connecticut, four were grilse --salmon that only spent one year in the sea. The lengths of the 52 fish ranged from 22 inches (a grilse) to 34 inches (a fish weighing about 15 pounds). Most of the fish were about 31 inches in length. Generally, the salmon were in good condition and good health.

For the first time since 1978, when salmon began returning in significant numbers, no fish were captured during the fall. In past years, small numbers of fish were taken at the fishways after mid-September when water temperatures drop and river flows increase.

There has been some surprise at the low return figure since 529 salmon returned in 1981. However, each year class is totally independent of other year classes, and comparisons are not really valid. The number of adults that return in a given year is dependent on the number of juvenile salmon, called smolts, that leave the river two years earlier. Since there are no wild salmon left in the watershed, all of the smolts orginate at hatcheries from which they are stocked every spring. Salmon spend two years feeding and growing in the ocean; therefore, fish that returned as adults in 1982 were stocked as smolts in 1980.

Unfortunately, few smolts were stocked in 1980. During 1979 there was an outbreak of a serious disease in a federal hatchery in Vermont that was rearing young salmon for the Connecticut River program. The disease killed the majority of the projected 1980 and 1981 smolt year classes, and biologists had to go in search of replacement fish. Those replacement fish were inferior in both quality and quantity to the group of fish originally designated for stocking, resulting in an adult return in 1982 much smaller than the 1981 return. The 1981 adult return was the result of stocking large numbers of high quality smolts in 1979.

Since the 1981 smolt stocking was also affected by this outbreak of disease, the 1983 adult return is also not expected to be very large. A fairly large number of smolts were stocked into the Farmington River in 1981 but the majority of the fish were of Canadian origin and that strain of smolts has not produced good adult returns to our river in the past. A few fish of that same Canadian strain were stocked into the Salmon River in 1981. Altogether, however, it is safe to assume that few of these adults will return in 1983.

TABLE I

CONNECTICUT RIVER ATLANTIC SALMON ADULT RUN

FINAL FIGURES: 1982

Holyoke dam fishlift (Connecticut River)	11
Rainbow dam fishway (Farmington River)	41
Leesville dam fishway (Salmon River)	11
Reported angler catches (various locations within the watershed)	2
Miscellaneous reports, confirmed by biologists (various locations within the watershed)	5

The mainstem Connecticut River at Holyoke was stocked with relatively few smolts in 1981 but the fish were of Penobscot River origin, a strain that has produced the best adult salmon returns. Because of all these different factors, it is difficult to predict how many fish will return in 1983.

Two weather events in 1982 affected the operation of the fishways where the adult salmon are captured. On February 2, a severe ice jam began near the Leesville dam fishway and churned downstream, clogging the Salmon River and threatening homes for days before heavy equipment, along with a break in the weather, loosened the ice. Although most of the dam and fishway were buried under tons of ice, only minor damage occurred, and the fishway was opened on schedule in March.

On June 6, the "Flood of '82" struck both the Farmington and Salmon Rivers, temporarily causing the Rainbow and Leesville fishways to be inoperable due to high water, sand, and debris. The Salmon River was hit harder than the larger Farmington River because its watershed received more rainfall than the Farmington River watershed and it does not have flood control dams and large impoundments as does the Farmington River watershed. The flood set a new record for the Salmon River. It crested at the Leesville dam at about 20,000 cubic feet per second (cfs). The former record, set in 1938, was around 13,300 cfs, and normal springtime flows range between 100 and 400 cfs.

Two days were required to dig out tons of sand deposited in the fishway before operation could resume. When the waters receded, serious undermining of the fishway was discovered but the damage did not prevent normal operation of the facility. In December, a contractor was hired to repair the undermining. No significant flood damage occurred at the Rainbow fishway.

Many questions have been asked about the impact of the flood on the salmon run but that impact is difficult to determine. The adult salmon migration period peaks during late May and early June, with salmon captures common throughout June. The Flood of '82 occurred during this time and during the post-flood period of June 6 through June 11 no salmon were captured. Experience in Connecticut and elsewhere shows that salmon tend to migrate upstream during a subsiding flood when the water is clearing and the flow is decreasing. The 1982 data show that salmon were captured at both fishways on June 11 and afterwards, when the floodwaters were receding. River flows remained high throughout the spring, especially in the Farmington River where flood control dams dumped the stored floodwaters, providing good conditions for salmon migration.

Although it is possible that the high, turbulent water killed salmon already in the tributaries, this is highly unlikely. Most fish probably dropped back to calmer waters or found a sheltered area of the streambed to 'ride out the storm.'

The floods washed away flashboards atop the Rainbow and Leesville dams and caused salmon to be attracted to areas below the spillways away from fishway entrances. When the flashboards at Rainbow were replaced and spillage ceased, three salmon were discovered trapped in a large, deep pool below the dam. One fish was captured and taken to the Adult Salmon Holding Station but the other two eluded capture and are presumed to have died during warm weather.

The situation at Leesville does not allow salmon to become trapped below the spillway for they can back down the stream and locate the fishway entrance. While the boards were out, however, salmon could have jumped over the west end of the spillway without using the fishway, thus avoiding capture. There were no confirmed reports of salmon in the Salmon River above the dam, and it is assumed that the fish did not resume their upstream movement until after the new boards were installed.

Some of the more sensitive captive salmon are always lost during the long wait for the November spawning season. Modifications in the procedures used at the Adult Salmon Holding Station in Barkhamsted paid off in 1982 with a significant decrease in the salmon mortality rate. About 80 percent of the salmon captured at the fishways survived to be spawned and produced approximately 86,000 eggs. Additional eggs for the Connecticut River program were

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coastal
area
management
71 capitol avenue hartford conn 06106

CAM NEWS

By Diane Giampa,
Public Participation Coordinator

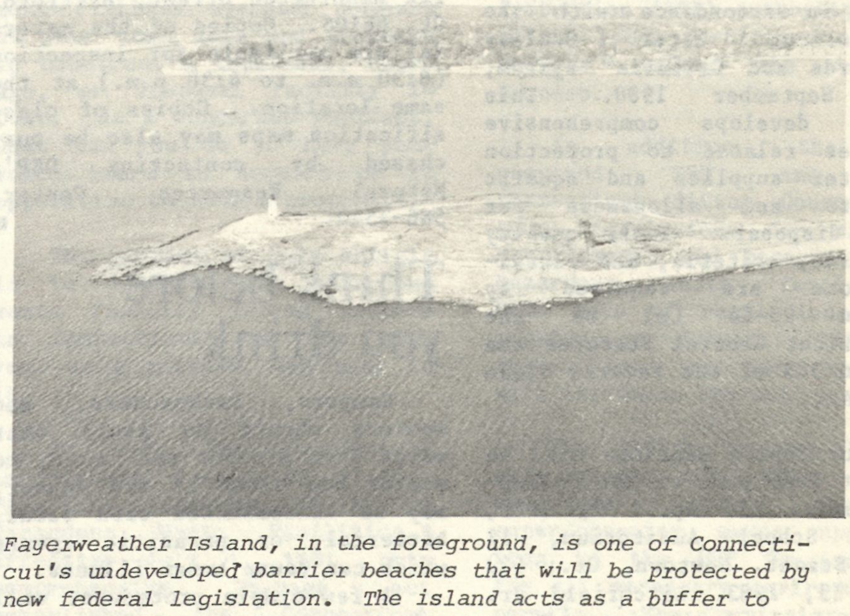
New Act protects barrier beaches

A number of Connecticut's barrier beaches, along with other similar beaches along the Atlantic and Gulf coasts, have been named for special protection under new federal legislation called the Coastal Barrier Resources Act. The state's Coastal Management Act has long recognized the fragile nature of these narrow land areas by requiring that their natural environments be protected from careless development. The purpose of the federal act is to protect further the fish and wildlife of the coastal barriers as well as to save human lives by limiting the amount of money that the federal government will spend on development activities associated with these beaches. One of the most significant provisions of the act is that beginning on October 1, 1983, no new federal flood insurance coverage will be issued for structures to be built on designated undeveloped coastal barriers along the Atlantic and Gulf coasts.

Barrier beaches receive their name because they act as buffers that protect the land masses that lie behind them from the harsh wave activity of the open sea. This is particularly important from June to November, the hurricane season on the Atlantic and Gulf coasts. A severe hurricane can generate winds stronger than 175 miles an hour. Hurricane waves and storm surge cause the greatest damage to coastal property in low lying areas. This surge forms an enormous wall of water, sometimes up to fifty miles wide and twenty feet higher than normal tide levels, that can sweep across the shoreline when the center of the hurricane reaches the land.

Since 1900, more than 18,000 people have been killed in storms along the eastern coast of this country, and yet the houses located on the devastated coastal barriers are often quickly rebuilt. For instance, the 1938 hurricane destroyed 156 of the 179 homes on Long Island's Westhampton Beach; by 1980 more than nine hundred new homes had been built on that same coastal barrier. The new legislation will discourage this type of rebuilding in the future.

There are more than four hundred coastal barriers along the eastern shore of the United States. A coastal barrier can be a small bit of land measuring only a few acres or a large land mass of several thousand acres. The barriers are composed of beaches, dunes and bars; essentially they are formed by sand or gravel that has not hardened or been compressed into rock. This loose composition is precisely the source of the protective strength of the coastal barrier. There is an ongoing sand-sharing system among the beaches, dunes and bars that make up the barriers, and they adapt to severe storms as well as to normal wave activities by changing shape and size and by moving slowly landward. Fire Island, for example, over the past 8000 years has migrated some five miles toward the Long Island Shore.



Dan Rothenberg

Fayerweather Island, in the foreground, is one of Connecticut's undeveloped barrier beaches that will be protected by new federal legislation. The island acts as a buffer to protect Bridgeport's coastline (in the background) from storm damage.

The barrier beach shelters the lagoon, bay or wetland lying on the landward side of it. More than eighty percent of the finfish and shellfish of the Atlantic and Gulf coast areas depend on this nurturing environment during some stage in their life cycles. Migrating and wintering waterfowl also rely on the coastal barriers and their nearby wetlands as breeding grounds while more than twenty rare and endangered species thrive there, including the bald eagle, the peregrine falcon, the whooping crane and the American crocodile. Connecticut's barrier beaches protect the Least Tern and the Piping Plover.

As long as people continue to develop and build on coastal barriers, they will be damaging an important natural resource as well as risking their lives in times of severe storms. And in purely economic terms, if this legislation had not been passed, federal expenditures on undeveloped coastal barriers could have cost the American taxpayer from $5.5 to $11 billion during the next twenty years. By ceasing to provide federal flood insurance so that structures can be rebuilt after a storm, perhaps to be destroyed and built again, the government is taking an important step toward saving lives, fragile resources and taxpayers' dollars.

In Connecticut, the following are the undeveloped barrier beaches that will be protected under the new legislation: Wilcox Beach and Ram Island in Stonington; part of Ocean Beach in New London; Waterford Town Beach, Goshen Cove Barrier Beach, Niantic Bay Barrier and Jordan Cove in Waterford; Lynde Point in Old Saybrook; Menunketesuck Island in Westbrook; Hammonasset Point (the undeveloped portion of Cedar Island) in Clinton: Milford Point in Milford; Fayerweather Island in Bridgeport; and part of the Norwalk Islands off Westport and Norwalk. ■

Ground water hearings

Connecticut's Department of Environmental Protection (DEP) is holding a continuation of Public Hearings to consider surface and ground water classifications in the Housatonic River Basin and the Southwest Coastal Basin. Classifications are proposed in accordance with the "Connecticut Water Quality Standards and Criteria" system, dated September 1980. This system develops comprehensive policies related to protection of water supplies and aquatic habitats and allowances for waste disposal. Water quality standards, criteria, and classifications are required by Section 25-54 (e) of the Connecticut General Statutes and Section 303 of the Federal Clean Water Act.

Four Public Hearings will be held at 7:00 p.m. on the following dates: (1) April 7, 1983, Middle School Auditorium, 11 Queen Street, Newtown, Ct.; (2) April 13, 1983, Litchfield Jr. High School Auditorium, Route 202, Litchfield, Ct.; (3) April 14, 1983, New Fairfield High School Auditorium, 54 Gillotti Road, New Fairfield, Ct.; and (4) April 20, 1983, Westport Town Hall Auditorium, 110 Myrtle Avenue, Westport, Ct.

Written and Oral Statements may be presented at these hearings or may be submitted to Robert Smith, Hearing Examiner, Water Compliance Unit, 566-2588, 122 Washington Street, Hartford, Ct. 06106. Copies of the material are available for inspection (8:30 a.m. to 4:30 p.m.) at the same location. Copies of classification maps may also be purchased by contacting DEP's Natural Resources Center, 566-3540. ■

Think before you drink

Campers, backpackers, and hunters should be aware that water from streams and lakes, no matter how clean it may appear, may be contaminated with viral, bacterial, or parasitic agents which can cause human illness.

A few simple procedures will make your water safe to drink and save you from considerable misery. There are three basic methods for disinfecting water: 1) boil the water at a rapid boil for about 10 minutes; 2) chlorinate the water using Halazone tablets or common bleach; 3) iodinate the water using Globaline tablets, tincture of iodine, iodine crystals, or other iodine-containing materials. Of the three methods, boiling is preferred.

A new brochure entitled "Water Disinfection for Campers and Backpackers" is available free of charge from: Communicable Disease Epidemiology and Control, PO Box 968, Santa Fe, NM 87504-0968; or call, toll-free, 1-800-432-4404. ■

New directory lists 1,800 groups

From clean air to clean water; from wild turkeys to wild horses, from saving the dunes to saving the tallgrass prairie -- the people who know natural resources are listed in the National Wildlife Federation's 1983 Conservation Directory.

The directory includes 12,000 individuals and 1,800 organizations. The 300-page 28th edition, published this month, lists key contacts and addresses for organizations involved with natural resource management in the United States and 113 countries.

Included are federal, state and Congressional officials, committees and agencies concerned with the environment, and thousands of citizens' groups.

The listings include addresses, telephone numbers, names of directors, statements of purpose, and the size of each group.

The 1983 Conservation Directory can be obtained for $9 plus $1.55 for shipping charges per order (regardless of number of books ordered) by writing to the National Wildlife Federation, 1412 16th Street NW, Washington, D.C. 20036. ■

Hazardous waste facility siting: citizens have a say

By Thomas Turick,
Principal Environmental Analyst,
DEP Hazardous Waste Management Unit

A hazardous waste management facility operator appears at your town hall and proposes to construct a treatment, storage, or disposal facility in town. As a concerned resident, what can you do to have your voice heard in support or in opposition to such a proposal?

The purpose of this article is to describe the hazardous waste facility siting process in Connecticut and the part you, as a citizen, can play in it.

In 1981 the Connecticut Legislature passed PA 81-369, "An Act Concerning Siting of Hazardous Waste Facilities." Effective July 1, 1981, this comprehensive 26-page act established the Connecticut Siting Council, outlined Department of Environmental Protection (DEP) authority, and set up local participation procedures under the siting process.

In addition, the act required DEP and the Connecticut Siting Council to adopt regulations for siting, development, and management of hazardous waste facilities. Both sets of regulations were adopted in January 1982 and detail how the two agencies will implement the act.

The siting process basically works like this: The hazardous waste facility owner/operator makes application to the DEP Commissioner for all necessary environmental permits. The Commissioner, by law, notifies the chief elected official of the proposed host community upon receipt of an application for a DEP siting permit.

It is important to note that the DEP siting permit is a single document consolidating all DEP permits, approvals, and licenses necessary to construct or modify a hazardous waste facility.

The Commissioner holds a single public hearing on the application no sooner than 30, no later than 60 days after his determination that an application is complete. The Commissioner considers all evidence offered at the public hearing, any reports from local, state, and federal agencies, and all other relevant information in making his decision on a siting permit application.

Next stop is the Connecticut Siting Council; the owner/operator must obtain a "certificate of public safety and necessity." Upon filing of an application with the Siting Council, the applicant is required to deposit up to $30,000, as determined by the Council, to be disbursed to a local project review committee for obtaining technical assistance in connection with review of the proposed facility.

The Act permits the establishment of a local project review committee of between four and nine members in each community where a hazardous waste facility is proposed to be located. All but one of the members must be electors in the host community, and one member must be an elector in another municipality likely to be most affected.

Likewise, the Siting Council's 13 members will comprise four ad hoc members; three of the four will be electors from the municipality in which the proposed facility is to be located, and the other must represent the neighboring municipality likely to be most affected by the proposed facility. The ad hoc members of the Siting Council and the members of the local project review committee are appointed by the chief elected officials of the municipalities they represent.

Upon receipt of a complete application, the Council will hold a public hearing within 180 days. An applicant is required to apply for local land use permits at the same time application is made to the Council. Such local decisions must be made within 130 days from the filing of the application. The applicant may appeal any local land use decision to the Council within 30 days of the decision. Thus, local land use decisions and appeals of those decisions must be made before the Council hearing is required to start (180 days from the filing of the application). In essence, the Siting Council decision preempts any local decisions.

By law, the Council must consider certain items in arriving at a facility siting decision. These include relationships to local planning, risk from hazards, and protection of the public from adverse impacts during facility construction. The act requires the Council to also consider the State Conservation and Development Plan, adverse economic impacts, population density and proximity to residential areas, and the risk to and impact on public and private drinking water supplies.

In addition, the act requires the Council to find and determine the following before granting approval:

1) Public need and the basis of that need;

2) The nature of probable environmental impacts;

3) An explanation of why no other disposal method is more appropriate in the case of land disposal;

4) Significant adverse effects on the natural environment;

5) Scenic, historic and recreational values;

6) Air and water purity including future water supply; and

7) Why any adverse effects are not sufficient for denial of approval.

The siting process is designed to take up to two years from time of initial application to DEP to the final certificate decision on the part of the Siting Council.

Your participation as concerned citizen is built into the process in many ways. You may seek to:

1) Serve on the Siting Council itself;

2) Serve on the local project review committee;

3) Attend and speak at DEP and Siting Council public hearings;

4) Be involved in the local land use decisions that must be made prior to siting.

There is a widespread recognition in Connecticut that serious mistakes have been made in the handling of hazardous wastes in the past. Will you be part of a solution? For a copy of Public Act 81-369 (Siting Bill) or a copy of DEP's Siting Regulations contact:

Connecticut DEP
Hazardous Materials
Management Unit
165 Capitol Avenue
Hartford, Connecticut 06106
Telephone: (203) 566-4630

For a copy of the Siting Council's Siting Regulations contact:

Connecticut Siting Council
1 Central Park Plaza
New Britian, CT. 06051
Telephone: (203) 827-2604

For further information on the above, contact: Tom Turick, 566-4630. ■

Getting the most out of your waste?

What percentage of the available materials is your town recycling?

By Lois Hager,
Source Separation Consultant,
DEP Solid Waste Management Unit

"What percentage of available material is your town actually recycling?" The Town of Glastonbury recently asked this question.

To arrive at an answer, the amount of recyclable material theoretically available in Glastonbury's municipal solid waste stream was compared with the tonnages actually being recycled by the town. The method which Glastonbury used to make the comparison will be helpful to other towns which want to evaluate the progress of their recycling programs or want to predict what tonnages of material they can expect to recycle given the recycling experience of similar communities elsewhere in Connecticut.

RESULTS OF RECYCLING IN GLASTONBURY (by weight)

Material	Estimated percentage of waste stream	Actual tonnage/percentage of theoretical total available	
		1980 tons	1981 tons
Paper	12.6%	435T/19%	551T/24%
Newspaper	6.5%		
Books & magazines	2.3%		
Office paper	3.8%		
Corrugated paper	9.2%	115T/7%	123T/7%
Glass containers	5.5%	73T/7%	139T/14%
Ferrous metal	8.9%	210T/13%	385T/24%
Ferrous, appliances	1.8%		
Ferrous, steel cans	2.9%		
Ferrous, other	2.7%		
Non-ferrous & aluminum	0.6%	6T/6%	7T/7%

To get a ball park figure for the volume of recyclables theoretically available, Glastonbury first multiplied its population times 0.7 tons. This is the amount of municipal solid waste which the DEP's Solid Waste Management Unit estimates each Connecticut resident generates each year. (Municipal solid waste includes household, commercial, business, and institutional waste, but excludes industrial, agricultural, construction, and mining waste.) For Glastonbury (pop. 25,000), the estimated municipal solid waste stream is about 17,500 tons per year.

Obviously, not all 17,500 tons is recyclable, so the second part of the calculation required multiplying Glastonbury's total municipal solid waste stream by the estimated composition of recyclable materials in that waste stream. The composition figures which Glastonbury used were estimates made by the Solid Waste Management Unit after the adoption of Connecticut's Bottle Law. They appear in column one of the table. The second and third columns give the results of Glastonbury's calculations for 1980 and 1981. The first figure is the actual tonnage of material recycled and the second is the percentage of theoretically available material recycled.

For example, to arrive at the volume of glass containers theoretically available, Glastonbury multiplied 17,500 tons by 5.5 percent and got a figure of 963 tons per year. In 1980 the town actually recycled 73 tons of glass, or seven percent of the amount theoretically available in its solid waste stream. In 1981, it recycled 139 tons of glass, or 14 percent of the amount theoretically available. The table demonstrates that in almost every category of recyclables Glastonbury's program improved in 1981.

For further information on Glastonbury's program, contact Ralph Mandeville, Public Works Department, Town Hall, 2108 Main Street, Glastonbury, CT 06033. ■

Nature for city kids

From page 5

the bugs in the dead log ("They have a supermarket right next door."), and how the log gradually decomposes to create fertilizer for new trees.

This short lesson is enough to spark the kids' interest, and for the remainder of the two mile walk Cheree is constantly interrupted by calls of "What's this?" and "How come?" The secret to success of Cheree's demonstration, and the nature in stress approach, is its involvement of as many kids as possible in a way that uses as many of the kids' senses as possible. Volunteers are asked to look, listen, and touch while the entire group is asked to interpret and respond. "The kids will remember what I told them," says Cheree, "because they put their ears against a tree."

Above all else the walk must be a positive experience. Nature in stress is not formal environmental education; it is an informal educational approach, designed to foster an initial curiosity about the natural environment. If the children enjoy the walk, says Cheree, and feel a sense of accomplishment after hiking some of the most difficult trails in the park, they will want to come back to learn more. "If I can just teach them to follow a marked trail their first time out, that's enough," she adds.

One bee sting and several unidentified insect bites later, 30 tired but happy kids have trooped back to the waiting yellow school buses. Groups form as the kids exaggerate their trail adventures for one another. They'll be back. ■

Marine service

From page 13

dredge material sites and observe fish behavior and recolonization within the regions. The toxicity of some dredge material is a paramount concern, and he feels that proper disposal practices help minimize the problem. The best solution for disposal is to "make sure that mangaement plans are adopted and implemented." A continual multi-disciplinary monitoring effort should investigate each site individually.

While Lance Stewart is engaged in activities suited to a marine biologist, Norm Bender works on the financial problems faced by today's fishermen. He advises them on alternative sources of credit, evaluating loan repayment abilities, and preparing application information, but he doesn't stop there. Information is also prepared for the commercial lending institutions so that they can be made aware of the financial needs and special circumstances of a person who makes his living from the sea. Taxes are of special concern to fishermen. Bender has prepared a pamphlet entitled "Tax Management for Commercial Fishermen" which clarifies both federal and state income tax procedures, credits, and deductions.

He works with the State Department of Revenue Services to expand certain exemptions (on fishing, vessels, engines, other equipment, fuel, etc.) and then channels that information back to the industry and suppliers. With the Marine Trades Industry, workshops have been prepared on taxes, loans, insurance, financial analysis, budgeting, and money management. He is also researching the charter boat business, has been a part of a regional Atlantic Coast striped bass study, and has developed cost and return models for fishermen's use. What he really likes about his work, Bender says, is that he "gets to work with all different types of people, which requires understanding different approaches to the same resource-based issues."

The M.A.S. also offers marine environmental education information. High school and college career days provide opportunities to discuss questions about the future of the marine science field. Through UConn's Cooperative Extension Service, 4-H groups are provided vocational counseling. The M.A.S. would like to be able to devote more time to the education programs, but budget and staffing constraints have prevented any expansion to date. The program is optimistic on fulfilling this growing need in the near future.

Like many other agencies which rely on federal funding for survival, the Marine Advisory Service cannot be sure of its future. Stewart and Bender credit Connecticut Senator Lowell Weicker with almost single-handedly saving the National Sea Grant program last year. With this support, the Connecticut Sea Grant package was enhanced to allow a strong research component which will focus on shellfish utilization and mariculture for the State's coast.

As a sign of support for Sea Grant, the State Legislature recently granted $60,000 to the Marine Advisory Service. These funds will be used to provide technical education to marine-oriented groups in the State, including commercial fishermen, marinas, recreational fishermen, and state and local commissions. They will also go toward helping to coordinate national and regional marine advisory functions within the New England States and toward the encouragement and promotion of marine resource recognition and development within Connecticut.

The Marine Advisory Service programs are an acknowledgement of the importance of Connecticut's marine resources, both as an industrial base and a recreational outlet. For more information, contact the:

Marine Advisory Service
Sea Grant/Cooperative Extension Program
Marine Sciences Institute
Avery Point, Groton, CT 06340
445-8664 or 466-1002, ext.234 ■

Salmon: 1982

From page 16

taken from domestic stocks in Connecticut State hatcheries as well as other state and federal hatcheries in Maine, Massachusetts, and Vermont.

Unlike Pacific salmon, Atlantic salmon have the capability to survive the spawning ordeal. These spawned-out fish are called kelts. In natural situations, these kelts return to sea and a small number of them may come back to spawn for a second (and perhaps third and fourth) time. As reported in previous issues of the "Citizens' Bulletin," DEP biologists are among the few in the world working with kelt reconditioning. This is a process to induce feeding, growth, and subsequent egg production in kelts held captive in fresh water. Eggs taken from kelts (captured at the fishways during previous years) supplement the egg supply obtained from bright, sea-run salmon (captured during the same year in which the eggs are taken).

The eggs from the kelts are especially valuable during years with a low adult salmon return because they insure that some high quality eggs will be available. Nearly 80 kelts from the 1981 run were retained in a federal hatchery in Massachusetts and at Kensington State Salmon Hatchery in Connecticut. Over 150,000 eggs were taken from the kelts in late 1982, many more than the number obtained from the bright, sea-run salmon captured in 1982.

Because the few Kensington hatchery personnel were preoccupied with rearing juvenile salmon and continuing the conversion of the facility from a trout hatchery to a salmon hatchery, assistance was needed for the time-consuming task of reconditioning the Connecticut kelts. Using a grant from Culbro Land Resources, Inc., the Farmington River Watershed Association sponsored a salmon intern, Gary Senn of Ivoryton, to work at the hatchery for the summer to recondition the kelts. The DEP is grateful for such interest and generosity on the part of private-sector groups.

The 1982 season saw the beginning of construction on two new facilities important in the restoration program. Work began early in the year on the Sunderland Adult Salmon Holding Station in Sunderland, Massachusetts. This federal facility, scheduled to be in operation for the 1983 season, will be similar to the DEP's Peoples Forest Adult Salmon Holding Station. The Sunderland station, which will have a capacity of 500 fish, will hold salmon captured in Massachusetts at the Holyoke and Turner's Falls dams. The Peoples Forest station will continue to hold all salmon captured in Connecticut. Meanwhile, the Berkshire National Fish Hatchery in Hartsville, Massachusetts -- the facility that has been holding salmon captured in Manssachusetts --will be used exclusively as a kelt reconditioning station. The Berkshire Hatchery had been scheduled to close in 1982 as part of cost-saving measures by the U.S. Fish and Wildlife Service but it has been granted a reprieve for at least one more year.

Construction began on the Bellows Falls, Vermont, fishway during the summer of 1982. With fish passage facilities in place at the Holyoke, Turner's Falls, and Vernon dams, salmon could now ascend the river (if allowed to) as far as the Bellows Falls dam, owned by the New England Power Company. When completed within the next two years, the Bellows Falls fishway will enable the fish to swim upstream as far as the Wilder dam, immediately upstream of White River Junction, Vermont. Therefore, when sea-run salmon are finally allowed beyond the Holyoke dam, they will be able to enter Vermont's White River -- a nearly pristine system with excellent habitat that biologists expect will support a great deal of natural reproduction by the salmon.

This time may be rapidly approaching as the number of eggs contributed to the program each year increases. In 1982 --after the two previous years of small smolt stockings -- a record number of 200,000 smolts was stocked into the river. It is likely that the 1984 adult run will surpass the run of 1981: 529. The numbers should continue to steadily increase during the 1980s -- barring other problems, such as diseases -- to the level where not all of the returning adults are needed for breeding. When that occurs, surplus fish will be released to swim upstream of the Leesville, Rainbow, and Holyoke dams. At that time, the salmon will begin to spawn naturally in our streams -- a big step toward the goal of salmon restoration. ■

Wildlife on private lands

The Cooperative Extension Service at Cornell University has recently published a fine booklet to help guide landowners in improving wildlife habitat on private land. The 40-page booklet, entitled "Enhancement of Wildlife Habitat on Private Lands" is available for $3.95 (postpaid) from Cornell University Distribution Center WM, 7 Research Park, Ithaca, NY 14850. ■

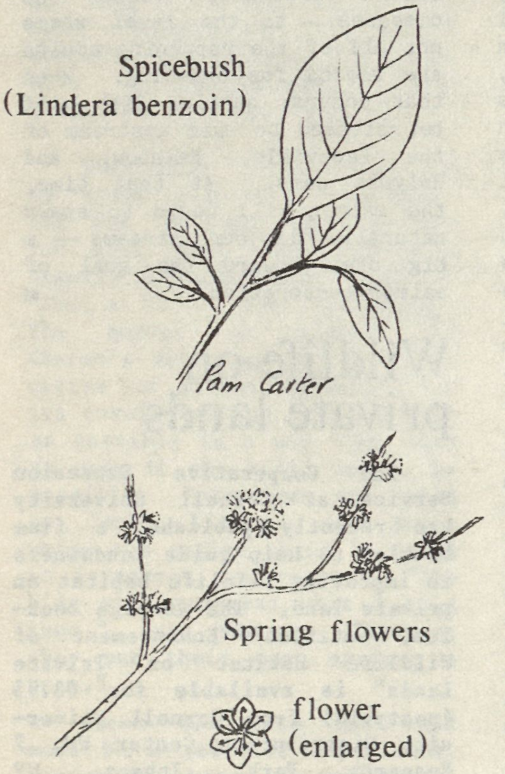
Cat scan

The DEP's Wildlife Bureau would appreciate the public's assistance in reporting sightings of coyote or bobcat (dead or alive) in the State. This information is important for determining coyote and bobcat populations in Connecticut. State biologists would also greatly appreciate your turning in coyote or bobcat carcasses. Please note: all coyote pelts and/or carcasses legally acquired, whether hunted, trapped, or otherwise obtained, must be tagged. Bobcats are a protected species in Connecticut; therefore it is illegal to intentionally take this species. Bobcat pelts, like coyote pelts, must be tagged.

Cards for reporting bobcat or coyote sightings are available from DEP Wildlife Bureau, State Office Bldg. Rm. 252, 165 Capitol Avenue, Hartford, CT 06106. If you have information concerning a carcass, please contact the Wildlife Bureau at 566-4683. ■

Trailside Botanizing

by G. Winston Carter



Few plants give more of a feeling of spring than the spicebush in bloom. The first indication of flowering is the appearance of little dabs of yellow profusely sprinkled throughout the moist woodland and along streams.

The yellow flowers of the spicebush develop before the leaves, often as early as March, but this usually extends into April. The tiny blossoms are unisexual, that is the sexes appear on separate plants and lack petals but, on close examination six yellow sepals will be seen. The fruit ripens between August and September and is usually red in color, although occasionally yellow.

The flowers, leaves, fruit and even the twigs when scratched are fragrant. People react differently to its aroma, which has been described as lemony. For some it is appealing, while the occasional person finds it disagreeable.

The odor that the spicebush gives off resembles that of gum benzoin, which is obtained from a native tree of Java and Sumatra. Gum benzoin has been a source of ointments, perfumes and incense. Spicebush is sometimes called Benjamin Bush which is a corruption of the word benzoin, although it is not related in any way to the benzoin tree.

Woodsmen value spicebush highly as wood for building fires because its bark is so oily that it will burn well when it is green. This plant was also supposed to be an indicator of good agricultural land.

A tea can be made from the twigs and leaves, and a mixture derived from its dried and powdered berries was used as a substitute for allspice when this seasoning could not be imported because of the Revolutionary War. Numerous songbirds and game animals eat the twigs and fruit, while the spice bush swallowtail butterfly uses this shrub as a host plant. ■

DEP Citizens' Bulletin
State of Connecticut
Department of Environmental Protection
State Office Building
Hartford, Connecticut 06106

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